Space Weather Forecast

Issued on Sunday 24 November 2024 at 12:24 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate Solar Activity likely, slight chance of Strong flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with two low level flares, peaking at 23/1607 UTC. There are now twelve active regions on the visible disc. The most notable regions are the two largest which are close together in the southeast. The magnetic complexity of these regions has been difficult to ascertain due to the viewing angle, but they are starting to approach an area where more detail is becoming apparent. Of the two, the southern one looks the more complex, with some magnetic complexity becoming apparent north of the main leading spot. The remaining spots on the disc are relatively smaller and simpler.

No Earth-directed CMEs (Coronal Mass Ejections) were observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds were mostly at slightly elevated levels, perhaps under weak fast wind influence. Wind speeds mostly varied between 370-430 km/s. The Interplanetary Magnetic Field, Bt, was weak to moderate, with the north-south component also varying weakly. Geomagnetic activity was Quiet to Unsettled (Kp1-3).

Energetic Particles / Solar Radiation: Solar radiation remained at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low to Moderate, with occasional Moderate-class flares likely and a slight chance of isolated X-class flares, primarily from from the regions in the southeast.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs forecast. The current slightly elevated wind speeds may become elevated at times early in the period due to weak coronal hole fast wind enhancement. However, any significant connection appears unlikely.

Geomagnetic activity is expected to remain at Quiet to Unsettled (Kp 0-3) levels through the period, with a slight chance of Active (Kp 4) intervals through Days 1 and 2 (24-25 Nov).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background levels, with a slight but rising chance of enhancement, mainly

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from the regions in the southeast.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	60	60	60	60
Very Active	R3-R5 (X Class)	No	10	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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